

Borehole

# 60-04-08

Log Event A

## Borehole Information

Farm : <u>U</u>	Tank : <u>U-104</u>	Site Number : <u>299-W18-124</u>
N-Coord : <u>38,077</u>	W-Coord : <u>75,687</u>	TOC Elevation : <u>668.83</u>
Water Level, ft :	Date Drilled : <u>2/28/1974</u>	

## Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>120</u>	

## Borehole Notes:

The top of the casing is located on the side of a berm approximately 2 ft above the surrounding U Tank Farm surface. Because the top of the casing is the zero reference for logging depth locations, a depth adjustment of 2 ft must be subtracted from the depth locations in this borehole when correlating this data with data from other boreholes in the U Tank Farm. According to the driller's records, this borehole was not perforated or grouted.

## Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	Logging Procedure : <u>P-GJPO-1783</u>

## Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>9/26/1995</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>118.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>6.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>9/27/1995</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>7.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Spectral Gamma-Ray Borehole  
Log Data Report

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Borehole

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Log Event A

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### Analysis Information

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Analyst : S.E. Kos

Data Processing Reference : P-GJPO-1787

Analysis Date : 5/16/1996

#### **Analysis Notes :**

This borehole was logged in two log runs. The pre- and post-field verification spectra indicate that the logging system was operating properly during data collection. The energy/channel drift observed during the logging runs did not exceed the search parameters of the processing software, and multiple energy calibrations were not required to process the data. A data overlap occurred at a depth of 7 ft when the same depth interval was logged between the log runs. The calculated concentrations were within the statistical uncertainty of the measurements, indicating acceptable repeatability.

The casing thickness is presumed to be 0.280 inch (in.), on the basis of published thickness for schedule-40, 6-in. steel casing. Casing-correction factors for a 0.280-in.-thick steel casing were applied during analysis.

Cs-137 was detected intermittently from the ground surface to a depth of 22 ft and at the bottom of the borehole. The maximum Cs-137 concentration of almost 8 pCi/g was measured at a depth of 2 ft.

Processed U-235 and U-238 concentrations related to uranium fuel materials waste were detected in this borehole. Processed U-235 was detected continuously at depths from 53 to 65 ft and from 70 to 76 ft. The maximum concentration of slightly more than 20 pCi/g was detected at a depth of 53 ft.

Processed U-238 was detected continuously at depths from 53 to 65 ft, from 68 to 78 ft, and at a few isolated locations. The maximum U-238 concentration of 500 pCi/g was measured at a depth of 53 ft.

Details regarding the interpretation of the data for this borehole are presented in the Tank Summary Data Report for tank U-104.

#### **Log Plot Notes:**

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection level (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.